

Appl. No. : 10/066,169
Filed : January 30, 2002

COMMENTS

In response to the Final Office Action mailed July 27, 2005, Applicant respectfully requests the Examiner to reconsider the above-captioned application in view of the foregoing

Allowed Claims

Applicant notes with appreciation that the Examiner has indicated that Claims 1-34 are in condition for allowance.

Claims 35 and 37-43

Claims 35 and 37-43 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for "failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention." Claims 35 and 37-43 also stand rejected under 35 U.S.C. 103(a) as unpatentable over Min in view of Chowdhury and further in view of Schmitt (USPN 6,038,919). Applicant respectfully disagrees with the rejection of these claims. Nevertheless, to advance prosecution, Applicant has amended these claims as outlined below. Applicant reserves the right to pursue these claims in their original or similar form in a continuing application.

As amended, independent Claim 35 recites, in part, a "method for determining changes in an amount of reactant in a first reactant source within an atomic layer deposition (ALD) system, the method comprising: monitoring pressure in a conduit that communicates with a reactant source container in the ALD system; generating a pressure signal corresponding to the monitored pressure during at least a first ALD cycle comprising a pulse of a first reactant and a pulse of a second reactant and at least a second ALD cycle separated in time from the first ALD cycle and comprising a pulse of the first reactant and a pulse of the second reactant ; comparing a pattern of the pressure signal over time during at least a portion of the first ALD cycle to a pattern of the pressure signal over time during at least a portion of the second ALD cycle; and measuring if there is a significant difference in the pattern of the pressure signal between the first ALD cycle and the second ALD cycle to determine the amount of the first reactant in the first reactant source."

Applicant respectfully submits that amended Claim 35 addresses the Examiner's concerns regarding indefiniteness by specifying the relationship between the first and second cycles and the comparison step.

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As was noted in the previous response, Min merely discloses an exemplary ALD reactor and a method of operating such a reactor. However, the Examiner argues that “it would have been obvious to incorporate a sensor as taught by Chowdury or Schmitt into the device and method of Min because of the ability to monitor the process in real time and thereby adjust for problems in the operation of the device as taught by Chowdury and the use of [a] sensor to measure reactant pressure in a system as taught by Schmitt.

Applicant initially notes that Claim 35 is a method claim. Thus, the combination proposed by the Examiner much teach or suggest all of the steps recited in Claim 35. As has been noted previously, Min merely discloses an ALD reactor, while Chowdhury discloses using mass-spectrometry to make real-time measurements, and Schmidt discloses using temperature and pressure measurements taken at discrete times to calculate gas volume in a container. As such, there is no disclosure, suggestion or motivation to use real time pressure measurements let alone “a pattern of the pressure signal sensor over time” in any of the references.

Accordingly, Applicants submit that Claim 35 is in condition for allowance. Claims 37-43 depend on Claim 35 and, for at least this reason, these claims are also in condition for allowance.

CONCLUSION

For the foregoing reasons, it is respectfully submitted that the rejections set forth in the outstanding Office Action are inapplicable to the present claims. Accordingly, early issuance of a Notice of Allowance is most earnestly solicited.

The undersigned has made a good faith effort to respond to all of the rejections in the case and to place the claims in condition for immediate allowance. Nevertheless, if any undeveloped issues remain or if any issues require clarification, the Examiner is respectfully requested to call Applicants’ attorney in order to resolve such issue promptly.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

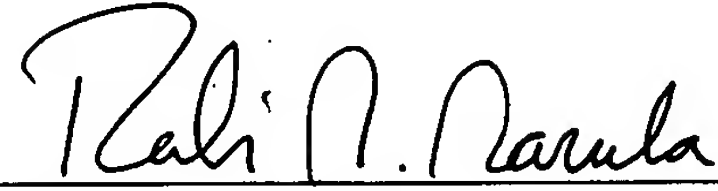
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Respectfully submitted,

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